

SEQUENCE LISTING

<110> FUKUCHI, Naoyuki
 FUTAKI, Fumie
 KITO, Morikazu
 SATO, Seiichi
 KAJIURA, Takayuki
 ONO, Yukitsugu
 TANAKA,, Akiko
 SHINOZAKI, Junko

<120> Substance with Antithrombic Activity and Method for Detecting Glycocalicin

<130> 198804US0PCT

<140> US 09/673,245

<141> 2000-10-23

<150> PCT/JP99/00089

<151> 1998-01-13

<150> JP 10-113962

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<160> 14

<170> PatentIn version 3.1

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Val Ser Ser Val Phe Ile Phe Pro Pro Lys Pro Lys Asp Val Leu Thr		
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att act ctg act cct aag gtc acg tgt gtt gtg gta gac atc agc aag		144
Ile Thr Leu Thr Pro Lys Val Thr Cys Val Val Val Asp Ile Ser Lys		
35 40 45		
gat gat ccc gag gtc cag ttc agc tgg ttt gta gat gat gtg gag gtg		192
Asp Asp Pro Glu Val Gln Phe Ser Trp Phe Val Asp Asp Val Glu Val		
50 55 60		
cac aca gct cag acg caa ccc cgg gag gag cag ttc aac agc act ttc		240
His Thr Ala Gln Thr Gln Pro Arg Glu Glu Gln Phe Asn Ser Thr Phe		
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cgc tca gtc agt gaa ctt ccc atc atg cac cag gac tgg ctc aat ggc		288
Arg Ser Val Ser Glu Leu Pro Ile Met His Gln Asp Trp Leu Asn Gly		
85 90 95		
aag gag ttc aaa tgc agg gta aac agt gca gct ttc cct gcc ccc atc		336
Lys Glu Phe Lys Cys Arg Val Asn Ser Ala Ala Phe Pro Ala Pro Ile		
100 105 110		
gag aaa acc atc tcc aaa acc aaa ggc aga ccg aag gct cca cag gtg		384
Glu Lys Thr Ile Ser Lys Thr Lys Gly Arg Pro Lys Ala Pro Gln Val		
115 120 125		
tac acc att cca cct ccc aag gag cag atg gcc aag gat aaa gtc agt		432
Tyr Thr Ile Pro Pro Pro Lys Glu Gln Met Ala Lys Asp Lys Val Ser		
130 135 140		
ctg acc tgc atg ata aca gac ttc ttc cct gaa gac att act gtg gag		480

Leu Thr Cys Met Ile Thr Asp Phe Phe Pro Glu Asp Ile Thr Val Glu
 145 150 155 160
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 Trp Gln Trp Asn Gly Gln Pro Ala Glu Asn Tyr Lys Asn Thr Gln Pro
 165 170 175
 atc atg gac aca gat ggc tct tac ttc gtc tac agc aag ctc aat gtg 576
 Ile Met Asp Thr Asp Gly Ser Tyr Phe Val Tyr Ser Lys Leu Asn Val
 180 185 190
 cag aag agc aac tgg gag gca gga aat act ttc acc tgc tct gtg tta 624
 Gln Lys Ser Asn Trp Glu Ala Gly Asn Thr Phe Thr Cys Ser Val Leu
 195 200 205
 cat gag ggc ctg cac aac cac cat act gag aag agc ctc tcc cac tct 672
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 35 40 45

Asp Asp Pro Glu Val Gln Phe Ser Trp Phe Val Asp Asp Val Glu Val
 50 55 60

His Thr Ala Gln Thr Gln Pro Arg Glu Glu Gln Phe Asn Ser Thr Phe
 65 70 75 80

Arg Ser Val Ser Glu Leu Pro Ile Met His Gln Asp Trp Leu Asn Gly
 85 90 95

Lys Glu Phe Lys Cys Arg Val Asn Ser Ala Ala Phe Pro Ala Pro Ile
 100 105 110

Glu Lys Thr Ile Ser Lys Thr Lys Gly Arg Pro Lys Ala Pro Gln Val
 115 120 125

Tyr Thr Ile Pro Pro Pro Lys Glu Gln Met Ala Lys Asp Lys Val Ser
 130 135 140

Leu Thr Cys Met Ile Thr Asp Phe Phe Pro Glu Asp Ile Thr Val Glu
 145 150 155 160

Trp Gln Trp Asn Gly Gln Pro Ala Glu Asn Tyr Lys Asn Thr Gln Pro
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Ile Met Asp Thr Asp Gly Ser Tyr Phe Val Tyr Ser Lys Leu Asn Val
 180 185 190

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His	Pro	Ile	Cys	Glu	Val	Ser	Lys	Val	Ala	Ser	His	Leu	Glu	Val	Asn		
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Cys	Asp	Lys	Arg	Asn	Leu	Thr	Ala	Leu	Pro	Pro	Asp	Leu	Pro	Lys	Asp		
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Thr	Thr	Ile	Leu	His	Leu	Ser	Glu	Asn	Leu	Leu	Tyr	Thr	Phe	Ser	Leu		
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	50					55					60						
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Cys	Glu	Leu	Thr	Lys	Leu	Gln	Val	Asp	Gly	Thr	Leu	Pro	Val	Leu	Gly		
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acc	ctg	gat	cta	tcc	cac	aat	cag	ctg	caa	agc	ctg	ccc	ttg	cta	ggg		336
Thr	Leu	Asp	Leu	Ser	His	Asn	Gln	Leu	Gln	Ser	Leu	Pro	Leu	Leu	Gly		
				85					90					95			
cag	aca	ctg	cct	gct	ctc	acc	gtc	ctg	gac	gtc	tcc	ttc	aac	cgg	ctg		384
Gln	Thr	Leu	Pro	Ala	Leu	Thr	Val	Leu	Asp	Val	Ser	Phe	Asn	Arg	Leu		
			100					105					110				
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Thr	Ser	Leu	Pro	Leu	Gly	Ala	Leu	Arg	Gly	Leu	Gly	Glu	Leu	Gln	Glu		
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ctc	tac	ctg	aaa	ggc	aat	gag	ctg	aag	acc	ctg	ccc	cca	ggg	ctc	ctg		480
Leu	Tyr	Leu	Lys	Gly	Asn	Glu	Leu	Lys	Thr	Leu	Pro	Pro	Gly	Leu	Leu		
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Thr	Pro	Thr	Pro	Lys	Leu	Glu	Lys	Leu	Ser	Leu	Ala	Asn	Asn	Asn	Leu		
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Thr	Glu	Leu	Pro	Ala	Gly	Leu	Leu	Asn	Gly	Leu	Glu	Asn	Leu	Asp	Thr		
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Gly Ser His Leu Leu Pro Phe Ala Phe Leu His Gly Asn Pro Trp Leu	
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Cys Asn Cys Glu Ile Leu Tyr Phe Arg Arg Trp Leu Gln Asp Asn Ala	
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gaa aat gtc tac gta tgg aag caa ggt gtg gac gtc aag gcc atg acc	768
Glu Asn Val Tyr Val Trp Lys Gln Gly Val Asp Val Lys Ala Met Thr	
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Ser Asn Val Ala Ser Val Gln Cys Asp Asn Ser Asp Lys Phe Pro Val	
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Tyr Lys Tyr Pro Gly Lys Gly Cys Pro Thr Leu Gly Asp Glu Gly Asp	
260 265 270	
aca gac cta tat gat tac tac cca gaa gag gac act gag ggc gat aag	912
Thr Asp Leu Tyr Asp Tyr Tyr Pro Glu Glu Asp Thr Glu Gly Asp Lys	
275 280 285	
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Val Arg Ala Thr Arg Thr Val Val Lys Phe Pro Thr Lys Ala His Thr	
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Thr Pro Trp Gly Leu Phe Tyr Ser Trp Ser Thr Ala Ser Leu Asp Val	
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ccc agg gat tgt ggt tgt aag cct tgc ata tgt aca gtc cca gaa gta	1056
Pro Arg Asp Cys Gly Cys Lys Pro Cys Ile Cys Thr Val Pro Glu Val	
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340 345 350	
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Thr Leu Thr Pro Lys Val Thr Cys Val Val Val Asp Ile Ser Lys Asp	
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Thr Ile Pro Pro Pro Lys Glu Gln Met Ala Lys Asp Lys Val Ser Leu			
450	455	460	
acc tgc atg ata aca gac ttc ttc cct gaa gac att act gtg gag tgg			1488
Thr Cys Met Ile Thr Asp Phe Phe Pro Glu Asp Ile Thr Val Glu Trp			
465	470	475	480
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Gln Trp Asn Gly Gln Pro Ala Glu Asn Tyr Lys Asn Thr Gln Pro Ile			
485	490	495	
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Met Asp Thr Asp Gly Ser Tyr Phe Val Tyr Ser Lys Leu Asn Val Gln			
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aag agc aac tgg gag gca gga aat act ttc acc tgc tct gtg tta cat			1632
Lys Ser Asn Trp Glu Ala Gly Asn Thr Phe Thr Cys Ser Val Leu His			
515	520	525	
gag ggc ctg cac aac cac cat act gag aag agc ctc tcc cac tct cct			1680
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Gly Lys			
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 50 55 60

Cys Glu Leu Thr Lys Leu Gln Val Asp Gly Thr Leu Pro Val Leu Gly
 65 70 75 80

Thr Leu Asp Leu Ser His Asn Gln Leu Gln Ser Leu Pro Leu Leu Gly
 85 90 95

Gln Thr Leu Pro Ala Leu Thr Val Leu Asp Val Ser Phe Asn Arg Leu
 100 105 110

Thr Ser Leu Pro Leu Gly Ala Leu Arg Gly Leu Gly Glu Leu Gln Glu
 115 120 125

Leu Tyr Leu Lys Gly Asn Glu Leu Lys Thr Leu Pro Pro Gly Leu Leu
 130 135 140

Thr Pro Thr Pro Lys Leu Glu Lys Leu Ser Leu Ala Asn Asn Asn Leu
 145 150 155 160

Thr Glu Leu Pro Ala Gly Leu Leu Asn Gly Leu Glu Asn Leu Asp Thr
 165 170 175

Leu Leu Leu Gln Glu Asn Ser Leu Tyr Thr Ile Pro Lys Gly Phe Phe
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Gly Ser His Leu Leu Pro Phe Ala Phe Leu His Gly Asn Pro Trp Leu
 195 200 205

Cys Asn Cys Glu Ile Leu Tyr Phe Arg Arg Trp Leu Gln Asp Asn Ala
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Glu Asn Val Tyr Val Trp Lys Gln Gly Val Asp Val Lys Ala Met Thr
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Ser Asn Val Ala Ser Val Gln Cys Asp Asn Ser Asp Lys Phe Pro Val
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 385 390 395 400

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 485 490 495

Met Asp Thr Asp Gly Ser Tyr Phe Val Tyr Ser Lys Leu Asn Val Gln
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Cys Pro Ala Pro Asn Leu Leu Gly Gly Pro Ser Val Phe Ile Phe Pro	
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Pro Lys Ile Lys Asp Val Leu Met Ile Ser Leu Ser Pro Ile Val Thr	
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tgt gtg gtg gtg gat gtg agc gag gat gac cca gat gtc cag atc agc	192
Cys Val Val Val Asp Val Ser Glu Asp Asp Pro Asp Val Gln Ile Ser	
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Trp Phe Val Asn Asn Val Glu Val His Thr Ala Gln Thr Gln Thr His	
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aga gag gat tac aac agt act ctc cgg gtg gtc agt gcc ctc ccc atc	288
Arg Glu Asp Tyr Asn Ser Thr Leu Arg Val Val Ser Ala Leu Pro Ile	
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cag cac cag gac tgg atg agt ggc aag gag ttc aaa tgc aag gtc aac	336
Gln His Gln Asp Trp Met Ser Gly Lys Glu Phe Lys Cys Lys Val Asn	
95 100 105 110	
aac aaa gac ctg cca gcg ccc atc gag aga acc atc tca aaa ccc aaa	384
Asn Lys Asp Leu Pro Ala Pro Ile Glu Arg Thr Ile Ser Lys Pro Lys	
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Gly Ser Val Arg Ala Pro Gln Val Tyr Val Leu Pro Pro Pro Glu Glu	
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gag atg act aag aaa cag gtc act ctg acc tgc atg gtc aca gac ttc	480
Glu Met Thr Lys Lys Gln Val Thr Leu Thr Cys Met Val Thr Asp Phe	
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Leu Asn Tyr Lys Asn Thr Glu Pro Val Leu Asp Ser Asp Gly Ser Tyr	
175 180 185 190	
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Phe Met Tyr Ser Lys Leu Arg Val Glu Lys Lys Asn Trp Val Glu Arg	
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Asn Ser Tyr Ser Cys Ser Val Val His Glu Gly Leu His Asn His His	
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 35 40 45

Val Val Asp Val Ser Glu Asp Asp Pro Asp Val Gln Ile Ser Trp Phe
 50 55 60

Val Asn Asn Val Glu Val His Thr Ala Gln Thr Gln Thr His Arg Glu
 65 70 75 80

Asp Tyr Asn Ser Thr Leu Arg Val Val Ser Ala Leu Pro Ile Gln His
 85 90 95

Gln Asp Trp Met Ser Gly Lys Glu Phe Lys Cys Lys Val Asn Asn Lys
 100 105 110

Asp Leu Pro Ala Pro Ile Glu Arg Thr Ile Ser Lys Pro Lys Gly Ser
 115 120 125

Val Arg Ala Pro Gln Val Tyr Val Leu Pro Pro Pro Glu Glu Glu Met
 130 135 140

Thr Lys Lys Gln Val Thr Leu Thr Cys Met Val Thr Asp Phe Met Pro
 145 150 155 160

Glu Asp Ile Tyr Val Glu Trp Thr Asn Asn Gly Lys Thr Glu Leu Asn

165

170

175

Tyr Lys Asn Thr Glu Pro Val Leu Asp Ser Asp Gly Ser Tyr Phe Met
 180 185 190

Tyr Ser Lys Leu Arg Val Glu Lys Lys Asn Trp Val Glu Arg Asn Ser
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His Pro Ile Cys Glu Val Ser Lys Val Ala Ser His Leu Glu Val Asn	
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tgt gac aag agg aat ctg aca gcg ctg cct cca gac ctg ccg aaa gac	144
Cys Asp Lys Arg Asn Leu Thr Ala Leu Pro Pro Asp Leu Pro Lys Asp	
20 25 30	
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Thr Thr Ile Leu His Leu Ser Glu Asn Leu Leu Tyr Thr Phe Ser Leu	
35 40 45	
gca acc ctg atg cct tac act cgc ctc act cag ctg aac cta gat agg	240
Ala Thr Leu Met Pro Tyr Thr Arg Leu Thr Gln Leu Asn Leu Asp Arg	
50 55 60	
tgc gag ctc acc aag ctc cag gtc gat ggg acg ctg cca gtg ctg ggg	288
Cys Glu Leu Thr Lys Leu Gln Val Asp Gly Thr Leu Pro Val Leu Gly	
65 70 75 80	
acc ctg gat cta tcc cac aat cag ctg caa agc ctg ccc ttg cta ggg	336
Thr Leu Asp Leu Ser His Asn Gln Leu Gln Ser Leu Pro Leu Leu Gly	
85 90 95	
cag aca ctg cct gct ctc acc gtc ctg gac gtc tcc ttc aac cgg ctg	384
Gln Thr Leu Pro Ala Leu Thr Val Leu Asp Val Ser Phe Asn Arg Leu	
100 105 110	
acc tcg ctg cct ctt ggt gcc ctg cgt ggt ctt ggc gaa ctc caa gag	432
Thr Ser Leu Pro Leu Gly Ala Leu Arg Gly Leu Gly Glu Leu Gln Glu	
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ctc tac ctg aaa ggc aat gag ctg aag acc ctg ccc cca ggg ctc ctg	480
Leu Tyr Leu Lys Gly Asn Glu Leu Lys Thr Leu Pro Pro Gly Leu Leu	
130 135 140	
acg ccc aca ccc aag ctg gag aag ctc agt ctg gct aac aac aac ttg	528
Thr Pro Thr Pro Lys Leu Glu Lys Leu Ser Leu Ala Asn Asn Asn Leu	
145 150 155 160	
act gag ctc ccc gct ggg ctc ctg aat ggg ctg gag aat ctc gac acc	576
Thr Glu Leu Pro Ala Gly Leu Leu Asn Gly Leu Glu Asn Leu Asp Thr	
165 170 175	
ctt ctc ctc caa gag aac tcg ctg tat aca ata cca aag ggc ttt ttt	624
Leu Leu Leu Gln Glu Asn Ser Leu Tyr Thr Ile Pro Lys Gly Phe Phe	
180 185 190	
ggg tcc cac ctc ctg cct ttt gct ttt ctc cac ggg aac ccc tgg tta	672
Gly Ser His Leu Leu Pro Phe Ala Phe Leu His Gly Asn Pro Trp Leu	
195 200 205	

tgc aac tgt gag atc ctc tat ttt cgt cgc tgg ctg cag gac aat gct Cys Asn Cys Glu Ile Leu Tyr Phe Arg Arg Trp Leu Gln Asp Asn Ala 210 215 220	720
gaa aat gtc tac gta tgg aag caa ggt gtg gac gtc aag gcc atg acc Glu Asn Val Tyr Val Trp Lys Gln Gly Val Asp Val Lys Ala Met Thr 225 230 235 240	768
tct aac gtg gcc agt gtg cag tgt gac aat tca gac aag ttt ccc gtc Ser Asn Val Ala Ser Val Gln Cys Asp Asn Ser Asp Lys Phe Pro Val 245 250 255	816
tac aaa tac cca gga aag ggg tgc ccc acc ctt ggt gat gaa ggt gac Tyr Lys Tyr Pro Gly Lys Gly Cys Pro Thr Leu Gly Asp Glu Gly Asp 260 265 270	864
aca gac cta tat gat tac tac cca gaa gag gac act gag ggc gat aag Thr Asp Leu Tyr Asp Tyr Tyr Pro Glu Glu Asp Thr Glu Gly Asp Lys 275 280 285	912
gtg cgt gcc aca agg act gtg gtc aag ttc ccc acc aaa gcc cat aca Val Arg Ala Thr Arg Thr Val Val Lys Phe Pro Thr Lys Ala His Thr 290 295 300	960
acc ccc tgg ggt cta ttc tac tca tgg tcc act gct tct cta gac gag Thr Pro Trp Gly Leu Phe Tyr Ser Trp Ser Thr Ala Ser Leu Asp Glu 305 310 315 320	1008
ccc aga ggg ccc aca atc aag ccc tgt cct cca tgc aaa tgc cca gca Pro Arg Gly Pro Thr Ile Lys Pro Cys Pro Pro Cys Lys Cys Pro Ala 325 330 335	1056
cct aac ctc ttg ggt gga cca tcc gtc ttc atc ttc cct cca aag atc Pro Asn Leu Leu Gly Gly Pro Ser Val Phe Ile Phe Pro Pro Lys Ile 340 345 350	1104
aag gat gta ctc atg atc tcc ctg agc ccc ata gtc aca tgt gtg gtg Lys Asp Val Leu Met Ile Ser Leu Ser Pro Ile Val Thr Cys Val Val 355 360 365	1152
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gac tgg atg agt ggc aag gag ttc aaa tgc aag gtc aac aac aaa gac Asp Trp Met Ser Gly Lys Glu Phe Lys Cys Lys Val Asn Asn Lys Asp 420 425 430	1344
ctg cca gcg ccc atc gag aga acc atc tca aaa ccc aaa ggg tca gta	1392

Leu	Pro	Ala	Pro	Ile	Glu	Arg	Thr	Ile	Ser	Lys	Pro	Lys	Gly	Ser	Val	
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aga	gct	cca	cag	gta	tat	gtc	ttg	cct	cca	cca	gaa	gaa	gag	atg	act	1440
Arg	Ala	Pro	Gln	Val	Tyr	Val	Leu	Pro	Pro	Pro	Glu	Glu	Glu	Met	Thr	
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aag	aaa	cag	gtc	act	ctg	acc	tgc	atg	gtc	aca	gac	ttc	atg	cct	gaa	1488
Lys	Lys	Gln	Val	Thr	Leu	Thr	Cys	Met	Val	Thr	Asp	Phe	Met	Pro	Glu	
		465			470				475						480	
gac	att	tac	gtg	gag	tgg	acc	aac	aac	ggg	aaa	aca	gag	cta	aac	tac	1536
Asp	Ile	Tyr	Val	Glu	Trp	Thr	Asn	Asn	Gly	Lys	Thr	Glu	Leu	Asn	Tyr	
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aag	aac	act	gaa	cca	gtc	ctg	gac	tct	gat	ggg	tct	tac	ttc	atg	tac	1584
Lys	Asn	Thr	Glu	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Tyr	Phe	Met	Tyr	
			500					505					510			
agc	aag	ctg	aga	gtg	gaa	aag	aag	aac	tgg	gtg	gaa	aga	aat	agc	tac	1632
Ser	Lys	Leu	Arg	Val	Glu	Lys	Lys	Asn	Trp	Val	Glu	Arg	Asn	Ser	Tyr	
		515					520					525				
tcc	tgt	tca	gtg	gtc	cac	gag	ggg	ctg	cac	aat	cac	cac	acg	act	aag	1680
Ser	Cys	Ser	Val	Val	His	Glu	Gly	Leu	His	Asn	His	His	Thr	Thr	Lys	
		530				535					540					
agc	ttc	tcc	cgg	act	ccg	ggg	aaa	tga								1707
Ser	Phe	Ser	Arg	Thr	Pro	Gly	Lys									
		545			550											

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His	Pro	Ile	Cys	Glu	Val	Ser	Lys	Val	Ala	Ser	His	Leu	Glu	Val	Asn
1			5					10					15		

Cys	Asp	Lys	Arg	Asn	Leu	Thr	Ala	Leu	Pro	Pro	Asp	Leu	Pro	Lys	Asp
	20						25					30			

Thr	Thr	Ile	Leu	His	Leu	Ser	Glu	Asn	Leu	Leu	Tyr	Thr	Phe	Ser	Leu
	35						40				45				

Ala Thr Leu Met Pro Tyr Thr Arg Leu Thr Gln Leu Asn Leu Asp Arg
 50 55 60

Cys Glu Leu Thr Lys Leu Gln Val Asp Gly Thr Leu Pro Val Leu Gly
 65 70 75 80

Thr Leu Asp Leu Ser His Asn Gln Leu Gln Ser Leu Pro Leu Leu Gly
 85 90 95

Gln Thr Leu Pro Ala Leu Thr Val Leu Asp Val Ser Phe Asn Arg Leu
 100 105 110

Thr Ser Leu Pro Leu Gly Ala Leu Arg Gly Leu Gly Glu Leu Gln Glu
 115 120 125

Leu Tyr Leu Lys Gly Asn Glu Leu Lys Thr Leu Pro Pro Gly Leu Leu
 130 135 140

Thr Pro Thr Pro Lys Leu Glu Lys Leu Ser Leu Ala Asn Asn Asn Leu
 145 150 155 160

Thr Glu Leu Pro Ala Gly Leu Leu Asn Gly Leu Glu Asn Leu Asp Thr
 165 170 175

Leu Leu Leu Gln Glu Asn Ser Leu Tyr Thr Ile Pro Lys Gly Phe Phe
 180 185 190

Gly Ser His Leu Leu Pro Phe Ala Phe Leu His Gly Asn Pro Trp Leu
 195 200 205

Cys Asn Cys Glu Ile Leu Tyr Phe Arg Arg Trp Leu Gln Asp Asn Ala
 210 215 220

Glu Asn Val Tyr Val Trp Lys Gln Gly Val Asp Val Lys Ala Met Thr
 225 230 235 240

Ser Asn Val Ala Ser Val Gln Cys Asp Asn Ser Asp Lys Phe Pro Val
 245 250 255

Tyr Lys Tyr Pro Gly Lys Gly Cys Pro Thr Leu Gly Asp Glu Gly Asp
 260 265 270

Thr Asp Leu Tyr Asp Tyr Tyr Pro Glu Glu Asp Thr Glu Gly Asp Lys
 275 280 285

Val Arg Ala Thr Arg Thr Val Val Lys Phe Pro Thr Lys Ala His Thr
 290 295 300

Thr Pro Trp Gly Leu Phe Tyr Ser Trp Ser Thr Ala Ser Leu Asp Glu
 305 310 315 320

Pro Arg Gly Pro Thr Ile Lys Pro Cys Pro Pro Cys Lys Cys Pro Ala
 325 330 335

Pro Asn Leu Leu Gly Gly Pro Ser Val Phe Ile Phe Pro Pro Lys Ile
 340 345 350

Lys Asp Val Leu Met Ile Ser Leu Ser Pro Ile Val Thr Cys Val Val
 355 360 365

Val Asp Val Ser Glu Asp Asp Pro Asp Val Gln Ile Ser Trp Phe Val
 370 375 380

Asn Asn Val Glu Val His Thr Ala Gln Thr Gln Thr His Arg Glu Asp
 385 390 395 400

Tyr Asn Ser Thr Leu Arg Val Val Ser Ala Leu Pro Ile Gln His Gln
 405 410 415

Asp Trp Met Ser Gly Lys Glu Phe Lys Cys Lys Val Asn Asn Lys Asp
 420 425 430

Leu Pro Ala Pro Ile Glu Arg Thr Ile Ser Lys Pro Lys Gly Ser Val
 435 440 445

Arg Ala Pro Gln Val Tyr Val Leu Pro Pro Pro Glu Glu Glu Met Thr
 450 455 460

Lys Lys Gln Val Thr Leu Thr Cys Met Val Thr Asp Phe Met Pro Glu
 465 470 475 480

Asp Ile Tyr Val Glu Trp Thr Asn Asn Gly Lys Thr Glu Leu Asn Tyr
 485 490 495

Lys Asn Thr Glu Pro Val Leu Asp Ser Asp Gly Ser Tyr Phe Met Tyr

500

505

510

Ser Lys Leu Arg Val Glu Lys Lys Asn Trp Val Glu Arg Asn Ser Tyr
515 520 525

Ser Cys Ser Val Val His Glu Gly Leu His Asn His His Thr Thr Lys
530 535 540

Ser Phe Ser Arg Thr Pro Gly Lys
545 550